<110> YE, Jane et al

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ACID MOLECULES ENCODING HUMAN KINASE PROTEINS, AND USES
THEREOF

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taccgttgaa aaaccccttta aattacccat aaagtatatg ggaagtatct tttctcagta 147300
aagcccaata cagtgtcacc tttcactaat gaaacaagcc attgcttttg ttttgttttg 147360
acttagttat ttttattttt ggtctcattt tggctaatac cagatgagct aaaatgttga 147420
acaaattata cttgtttttta tagactagaa ttactctttt ttttcttttc aggcagagtc 147480
tcactctgtc acccaggctg gagtgcagtg gcatgatctc tgctcactac atctgcctcc 147540
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gttggtttca aactcctggt ctcaagtgat ccgcccacct tggcctccca aagtgctggg 147720
attacaggcg tgagccacca aacctggcct tagaattact cttagaacag tggaatgccc 147780
acacatccaa gacaggcaag ttcatggaga ctaagggaac agtggtatca tgtctccctt 147840
ctcccttgtg cttactacaa gaatggcagg cagaattccc tacttattta aaatatcact 147900
gatgtctcac tcttttttctt tatattttat ttattgattt gccacaaagt ttaattcacc 147960
```

41

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taagtgagac gtgcatatga tgtaactcca ctgtacagat acacagatct ttacagaaga 148020
actattttg gcaacccta tgcccctggg tagggtccag aagtgaacag gcttggtggg 148080
ggattgtttt cacctcttgg ctactcagag tacctaaacc tgtccttact tatggagagc 148140
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ggggatg                                                          148567


<210> 4
<211> 404
<212> PRT
<213> Mus Musculus


<400> 4
Met Gly Gly Asn His Ser His Lys Pro Pro Val Phe Asp Glu Asn Glu
1               5                   10                  15
Glu Val Asn Phe Asp His Phe Gln Ile Leu Arg Ala Ile Gly Lys Gly
            20                  25                  30
Ser Phe Gly Lys Val Cys Ile Val Gln Lys Arg Asp Thr Lys Lys Met
        35                  40                  45
Tyr Ala Met Lys Tyr Met Asn Lys Gln Lys Cys Val Gln Glu Arg Asp
    50                  55                  60
Glu Val Arg Asn Val Phe Arg Glu Leu Gln Ile Met Gln Gly Leu Glu
65                  70                  75                  80
His Pro Phe Leu Val Asn Leu Trp Tyr Ser Phe Gln Asp Glu Glu Asp
                85                  90                  95
Met Phe Met Val Val Asp Leu Leu Leu Gly Gly Asp Leu Arg Tyr His
                100                 105                 110
Leu Gln Gln Asn Val His Phe Thr Glu Gly Thr Val Lys Leu Tyr Ile
        115                 120                 125
Cys Glu Leu Ala Leu Ala Leu Glu Tyr Leu Gln Arg Tyr His Ile Ile
    130                 135                 140
His Arg Asp Ile Lys Pro Asp Asn Ile Leu Leu Asp Glu His Gly His
145                 150                 155                 160
Val His Ile Thr Asp Phe Asn Ile Ala Thr Val Leu Lys Gly Ser Glu
                165                 170                 175
Lys Ala Ser Ser Met Ala Gly Thr Lys Pro Tyr Met Ala Pro Glu Val
                180                 185                 190
Phe Gln Val Tyr Val Asp Gly Gly Pro Gly Tyr Ser Tyr Pro Val Asp
            195                 200                 205
Trp Trp Ser Leu Gly Val Thr Ala Tyr Glu Leu Leu Arg Gly Trp Arg
    210                 215                 220
Pro Tyr Glu Ile His Ser Ala Thr Pro Ile Asp Glu Ile Leu Asn Met
225                 230                 235                 240
Phe Lys Val Glu Arg Val His Tyr Ser Ser Thr Trp Cys Glu Gly Met
                245                 250                 255
Val Ser Leu Leu Lys Lys Leu Leu Thr Lys Asp Pro Glu Ser Arg Leu
                260                 265                 270
Ser Ser Leu Arg Asp Ile Gln Ser Met Thr Tyr Leu Ala Asp Met Asn
            275                 280                 285
Trp Asp Ala Val Phe Glu Lys Ala Leu Met Pro Gly Phe Val Pro Asn
    290                 295                 300
Lys Gly Arg Leu Asn Cys Asp Pro Thr Phe Glu Leu Glu Glu Met Ile
305                 310                 315                 320
Leu Glu Ser Lys Pro Leu His Lys Lys Lys Arg Leu Ala Lys His
                325                 330                 335
Arg Ser Arg Asp Ser Thr Lys Asp Ser Cys Pro Leu Asn Gly His Leu
            340                 345                 350
Gln Gln Cys Leu Glu Thr Val Arg Lys Glu Phe Ile Ile Phe Asn Arg
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42

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                355                        360                        365
      Glu Lys Leu Arg Arg Gln Gln Gly His Asp Gly Gln Leu Ser Asp Leu
          370                        375                    380
      Asp Gly Arg Ile Gly Ser Gln Thr Ser Ser Lys Leu Gln Asp Gly Arg
      385                        390                    395                    400
      Asn Asn Asn Ile


<210> 5
<211> 403
<212> PRT
<213> Human

<400> 5
      Met Gly Gly Asn His Ser His Lys Pro Pro Val Phe Asp Glu Asn Glu
      1                   5                   10                      15
      Glu Val Asn Phe Asp His Phe Gln Ile Leu Arg Ala Ile Gly Lys Gly
                  20                      25                      30
      Ser Phe Gly Lys Val Cys Ile Val Gln Lys Arg Asp Thr Lys Lys Met
              35                      40                      45
      Tyr Ala Met Lys Tyr Met Asn Lys Gln Lys Cys Ile Glu Arg Asp Glu
          50                      55                      60
      Val Arg Asn Val Phe Arg Glu Leu Gln Ile Met Gln Gly Leu Glu His
      65                      70                      75                      80
      Pro Phe Leu Val Asn Leu Trp Tyr Ser Phe Gln Asp Glu Glu Asp Met
                          85                      90                      95
      Phe Met Val Val Asp Leu Leu Leu Gly Gly Asp Leu Arg Tyr His Leu
                  100                     105                     110
      Gln Gln Asn Val His Phe Thr Glu Gly Thr Val Lys Leu Tyr Ile Cys
              115                     120                     125
      Glu Leu Ala Leu Ala Leu Glu Tyr Leu Gln Arg Tyr His Ile Ile His
          130                     135                     140
      Arg Asp Ile Lys Pro Asp Asn Ile Leu Leu Asp Glu His Gly His Val
      145                     150                     155                     160
      His Ile Thr Asp Phe Asn Ile Ala Thr Val Val Lys Gly Ala Glu Arg
                          165                     170                     175
      Ala Ser Ser Met Ala Gly Thr Lys Pro Tyr Met Ala Pro Glu Val Phe
                  180                     185                     190
      Gln Val Tyr Met Asp Arg Gly Pro Gly Tyr Ser Tyr Pro Val Asp Trp
              195                     200                     205
      Trp Ser Leu Gly Ile Thr Ala Tyr Glu Leu Leu Arg Gly Trp Arg Pro
          210                     215                     220
      Tyr Glu Ile His Ser Val Thr Pro Ile Asp Glu Ile Leu Asn Met Phe
      225                     230                     235                     240
      Lys Val Glu Arg Val His Tyr Ser Ser Thr Trp Cys Lys Gly Met Val
                          245                     250                     255
      Ala Leu Leu Arg Lys Leu Leu Thr Lys Asp Pro Glu Ser Arg Val Ser
                  260                     265                     270
      Ser Leu His Asp Ile Gln Ser Val Pro Tyr Leu Ala Asp Met Asn Trp
              275                     280                     285
      Asp Ala Val Phe Lys Lys Ala Leu Met Pro Gly Phe Val Pro Asn Lys
          290                     295                     300
      Gly Arg Leu Asn Cys Asp Pro Thr Phe Glu Leu Glu Glu Met Ile Leu
      305                     310                     315                     320
      Glu Ser Lys Pro Leu His Lys Lys Lys Arg Leu Ala Lys Asn Arg
                  325                     330                     335
      Ser Arg Asp Gly Thr Lys Asp Ser Cys Pro Leu Asn Gly His Leu Gln
                  340                     345                     350
      His Cys Leu Glu Thr Val Arg Glu Glu Phe Ile Ile Phe Asn Arg Glu
              355                     360                     365
      Lys Leu Arg Arg Gln Gln Gly Gln Gly Ser Gln Leu Leu Asp Thr Asp
          370                     375                     380
```

43

Ser Arg Gly Gly Gly Gln Ala Gln Ser Lys Leu Gln Asp Gly Cys Asn
385   390   395   400
Asn Asn Leu

<210> 6
<211> 384
<212> PRT
<213> Mus Musculus

<400> 6
Ser Ala Arg Arg Pro Val Phe Asp Asp Lys Glu Asp Val Asn Phe Asp
1   5   10   15
His Phe Gln Ile Leu Arg Ala Ile Gly Lys Gly Ser Phe Gly Lys Val
            20   25   30
Cys Ile Val Gln Lys Arg Asp Thr Glu Lys Met Tyr Ala Met Lys Tyr
        35   40   45
Met Asn Lys Gln Gln Cys Ile Glu Arg Asp Glu Val Arg Asn Val Phe
    50   55   60
Arg Glu Leu Glu Ile Leu Gln Glu Ile Glu His Val Phe Leu Val Asn
65   70   75   80
Leu Trp Tyr Ser Phe Gln Asp Glu Glu Asp Met Phe Met Val Val Asp
            85   90   95
Leu Leu Leu Gly Gly Asp Leu Arg Tyr His Leu Gln Gln Asn Val Gln
        100   105   110
Phe Ser Glu Asp Thr Val Arg Leu Tyr Ile Cys Glu Met Ala Leu Ala
    115   120   125
Leu Asp Tyr Leu Arg Ser Gln His Ile Ile His Arg Asp Val Lys Pro
130   135   140
Asp Asn Ile Leu Leu Asp Glu Gln Gly His Ala His Leu Thr Asp Phe
145   150   155   160
Asn Ile Ala Thr Ile Ile Lys Asp Gly Glu Arg Ala Thr Ala Leu Ala
                165   170   175
Gly Thr Lys Pro Tyr Met Ala Pro Glu Ile Phe His Ser Phe Val Asn
            180   185   190
Gly Gly Thr Gly Tyr Ser Phe Glu Val Asp Trp Trp Ser Val Gly Val
        195   200   205
Met Ala Tyr Glu Leu Leu Arg Gly Trp Arg Pro Tyr Asp Ile His Ser
    210   215   220
Ser Asn Ala Val Glu Ser Leu Val Gln Leu Phe Ser Thr Val Ser Val
225   230   235   240
Gln Tyr Val Pro Thr Trp Ser Lys Glu Met Val Ala Leu Leu Arg Lys
            245   250   255
Leu Leu Thr Val Asn Pro Glu His Arg Phe Ser Ser Leu Gln Asp Met
            260   265   270
Gln Thr Ala Pro Ser Leu Ala His Val Leu Trp Asp Asp Leu Ser Glu
        275   280   285
Lys Lys Val Glu Pro Gly Phe Val Pro Asn Lys Gly Arg Leu His Cys
    290   295   300
Asp Pro Thr Phe Glu Leu Glu Glu Met Ile Leu Glu Ser Arg Pro Leu
305   310   315   320
His Lys Lys Lys Lys Arg Leu Ala Lys Asn Lys Ser Arg Asp Ser Ser
            325   330   335
Arg Asp Ser Ser Gln Ser Glu Asn Asp Tyr Leu Gln Asp Cys Leu Asp
        340   345   350
Ala Ile Gln Gln Asp Phe Val Ile Phe Asn Arg Glu Lys Leu Lys Arg
        355   360   365
Ser Gln Glu Leu Met Ser Glu Pro Pro Pro Gly Pro Glu Thr Ser Asp
370   375   380

<210> 7

44

<211> 316
<212> PRT
<213> Homo sapiens

<400> 7

```
Tyr Ser Phe Gln Asp Glu Glu Asp Met Phe Met Val Val Asp Leu Leu
1               5                   10                  15
Leu Gly Gly Asp Leu Arg Tyr His Leu Gln Gln Asn Val His Phe Thr
            20                  25                  30
Glu Gly Thr Val Lys Leu Tyr Ile Cys Glu Leu Ala Leu Ala Leu Glu
            35                  40                  45
Tyr Leu Gln Arg Tyr His Ile Ile His Arg Asp Ile Lys Pro Asp Asn
    50                  55                  60
Ile Leu Leu Asp Glu His Gly His Val His Ile Thr Asp Phe Asn Ile
65                  70                  75                  80
Ala Thr Val Val Lys Gly Ala Glu Arg Ala Ser Ser Met Ala Gly Thr
                85                  90                  95
Lys Pro Tyr Met Ala Pro Glu Val Phe Gln Val Tyr Met Asp Arg Gly
            100                 105                 110
Pro Gly Tyr Ser Tyr Pro Val Asp Trp Trp Ser Leu Gly Ile Thr Ala
            115                 120                 125
Tyr Glu Leu Leu Arg Gly Trp Arg Pro Tyr Glu Ile His Ser Val Thr
    130                 135                 140
Pro Ile Asp Glu Ile Leu Asn Met Phe Lys Val Glu Arg Val His Tyr
145                 150                 155                 160
Ser Ser Thr Trp Cys Lys Gly Met Val Ala Leu Leu Arg Lys Leu Leu
                165                 170                 175
Thr Lys Asp Pro Glu Ser Arg Val Ser Ser Leu His Asp Ile Gln Ser
            180                 185                 190
Val Pro Tyr Leu Ala Asp Met Asn Trp Asp Ala Val Phe Lys Lys Ala
            195                 200                 205
Leu Met Pro Gly Phe Val Pro Asn Lys Gly Arg Leu Asn Cys Asp Pro
    210                 215                 220
Thr Phe Glu Leu Glu Glu Met Ile Leu Glu Ser Lys Pro Leu His Lys
225                 230                 235                 240
Lys Lys Lys Arg Leu Ala Lys Asn Arg Ser Arg Asp Gly Thr Lys Asp
                245                 250                 255
Ser Cys Pro Leu Asn Gly His Leu Gln His Cys Leu Glu Thr Val Arg
            260                 265                 270
Glu Glu Phe Ile Ile Phe Asn Arg Glu Lys Leu Arg Arg Gln Gln Gly
    275                 280                 285
Gln Gly Ser Gln Leu Leu Asp Thr Asp Ser Arg Gly Gly Gly Gln Ala
    290                 295                 300
Gln Ser Lys Leu Gln Asp Gly Cys Asn Asn Asn Leu
305                 310                 315
```

<210> 8
<211> 347
<212> PRT
<213> Caenorhabditis elegans

<400> 8

```
His Phe Ser Val Ile Arg Ser Ile Gly Arg Gly Ala Phe Gly Lys Val
1               5                   10                  15
Cys Ile Val Gln Glu Arg Lys Thr Lys Lys Tyr Phe Ala Leu Lys Tyr
            20                  25                  30
Met Asn Lys Arg Arg Cys Ile Glu Lys Gly Val Ala Ala Asn Val Ile
            35                  40                  45
Arg Glu Leu Thr Leu Leu Ser Lys Met Ser His Pro Phe Ile Val Asn
    50                  55                  60
Leu Trp Tyr Thr Phe Gln Asp Gly Asp Tyr Met Tyr Met Val Ser Asp
65                  70                  75                  80
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Leu Leu Leu Gly Gly Asp Leu Arg Tyr His Leu Ser Gln Gln Gly Lys
                    85   90   95
Phe Ala Glu Asp Arg Ala Lys Leu Tyr Leu Cys Glu Ile Cys Leu Ala
                100   105   110
Val Glu Tyr Leu His Glu Met Lys Ile Val His Arg Asp Ile Lys Pro
            115   120   125
Glu Asn Ile Leu Leu Asp Glu Gln Gly His Ala His Leu Thr Asp Leu
        130   135   140
Asn Leu Ala Thr Gln Leu Glu Asp Asp Gln Leu Ala Thr Ser Tyr Ser
145   150   155   160
Gly Thr Arg Pro Tyr Met Ala Pro Glu Ile Tyr Ala Thr Tyr Leu Glu
                165   170   175
Ile Glu Asp Gly Tyr Asp Ser Arg Val Asp Trp Trp Ala Leu Gly Val
            180   185   190
Cys Phe Tyr Glu Met Leu Arg Gly Arg Thr Pro Phe Glu Phe Ser Ser
        195   200   205
Arg Thr Lys Pro Glu Glu Ala Tyr Val Ala Phe Arg Glu Ser Ser Ile
    210   215   220
Pro Tyr Pro Ala His Trp Pro Thr Asp Leu Ile Gln Phe Ile Asn Ser
225   230   235   240
Met Leu Lys Phe Asp Lys Glu Lys Arg Leu Val Gly Leu Glu Ala Ile
                245   250   255
Lys Lys His Ser Tyr Thr Glu Arg Ile Asp Phe Lys Ser Val Phe Glu
        260   265   270
Lys Lys Pro Ser Pro Val Phe Ile Pro Cys Lys Glu Gly Leu Asn Cys
    275   280   285
Asp Pro Met Tyr Glu Leu Glu Glu Arg Ile Leu Val Ser Thr Pro Ile
    290   295   300
His Arg Arg Arg Thr Asn His Asn Asn Ser Ser Gly Arg Ser Ser Ser
305   310   315   320
Glu Pro Gln Asn Ala Ala Leu Val Glu Val Ser Lys Ala Phe Ile Asp
                325   330   335
Phe Ser Arg His Asn Val Lys Ile Glu Pro Asn
            340   345

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